

## Microbe and Fungi Test Study Guide

Test October 20, 2014

**Vocabulary:** Use your ALF vocabulary sheet. Know the meaning of each of these words and be prepared to answer questions that make you think about their meanings.

### **Dr. Stetter**

What was Dr. Stetter's contribution to the study of the organisms in the Domain Archae?

**\_ Dr. Stetter was able to recreate the conditions of early Earth in his lab so that he could grow the microbe, *thermatoga maritime* . He then extracted the DNA from the microbe for study.**

### **Dr. Woese**

What was Dr. Woese's contribution to the field of Biology?

**Dr. Woese worked with RNA from microbes that live in extreme environments and pieced together a new tree of life that had three main branches. These are Bacteria, Eukarya and Archaea.**

## **Bacteria**

Are bacteria classified as living or non-living and why?

**Bacteria are considered living because they reproduce, use energy, and require water to survive.**

What conditions do bacteria require to multiply?

**Bacteria require a source of food, the right temperature (usually warm) and moisture.**

How do bacteria reproduce?

**Bacteria reproduce by a process called binary fission where one cell divides into two identical cells. Some bacteria also can exchange genetic material in a process known as conjugation.**

Are all bacteria harmful? Explain

**No, not all bacteria are harmful. Some we use to make foods such as yogurt while others live inside us and help to keep us healthy.**

**Bacteria are also very important in the process of decomposition.**

What treatment do humans have for diseases caused by bacteria?

**Disease caused by bacteria can be treated with antibiotics.**

What are some similarities and differences between bacteria and viruses? (living, non-living, microscopic, treated with antibiotics, vaccination)

**Similarities – they are both microscopic, carry genetic material, can cause diseases, multiply rapidly under the right conditions**

**Differences – bacteria are living while viruses are not, diseases caused by bacteria can be treated with antibiotics while viruses cannot, we can prevent some viral disease with vaccines but we do not have vaccines for bacteria, bacteria are capable of reproducing themselves while viruses need another cell to reproduce.**

## **Viruses**

Are viruses classified as living or non-living?

**No, viruses are not considered living because they cannot reproduce on their own. They do not use their own energy to grow and respond to stimuli. They are not cells and lack the organelles and cytoplasm of a living cell.**

How do viruses reproduce?

**Viruses must enter a living cell in order to reproduce. Once inside they take over the cell's DNA and use it to reproduce its own DNA.**

How can we prevent diseases caused by viruses?

**We can vaccinate someone to prevent people from getting some diseases caused by viruses.**

## **Protists**

Are protists prokaryotes or eukaryotes?

### **eukaryotes**

What are the three types of protists?

**Algae are the protists most like plants because they are autotrophs**

**Slime Molds are the protists most like Fungi**

**Amoebas are the protists most like animals**

Why is this kingdom often called the 'odds and ends' kingdom?

**Protists are very different from each other. They are pretty much any organism that is eukaryotic but not an animal, plant, fungus or bacteria.**

## **Fungi**

What are fungi?

**Fungi are eukaryotes that have cell walls, are heterotrophs that feed by absorbing their food and use spore to reproduce.**

What are hyphae?

**Hyphae are the branching thin tubes that make up the bodies of complex fungi.**

How do fungi obtain food?

**Fungi absorb their food through the hyphae that grow into the food.**

What is the role of fungi in nature?

**Many fungi are decomposers, some are used by humans to make food, some produce medicines and others cause disease.**

How do people use fungi to fight disease?

**Some fungi produce chemicals called antibiotics such as penicillin. We use antibiotics to fight diseases caused by bacteria.**

Fungi cause many diseases in plants and animals. Name and describe two disease caused by fungi that affect humans.

**Athlete's foot is one disease caused by a fungus that affects humans.**

**Ringworm is a fungal infection of the skin that causes a circular rash or ring**

Symbiosis and fungi – describe the relationship between fungi and plant roots and algae (or autotrophic bacteria) and fungi in lichen.

Fungi and plant roots –

**Fungi grow around plant roots and provide water and nutrient from the soil to the plant. The plant makes sugars that are available to the fungus**

Fungi and algae or autotrophic bacteria –

**Algae or cyanobacteria partners with fungi to form lichen. The algae or bacteria produce food while the fungus provides water and nutrients to the algae or bacteria.**

## **Interactions**

Organisms interact with each other in different ways. Symbiosis is a broad term for relationships between organisms where at least one benefits. Define each of the terms below and give an example.

**Commensalism – a relationship where one organism benefits and the other neither benefits nor is harmed.**

Mutualism –

**A relationship where both organisms benefit.**

Predator – prey –

**A relationship where one organism eats another for food.**

Competition -

**Where organisms compete with each other for a limited resource such as food, water, living space or mates.**

Parasitism-

**Where one organism eats off of another. One benefits and the other is harmed**

### **Classification**

Know the three domains and six kingdoms commonly used by scientists today to classify organisms. Understand the basic characteristics of organisms in each domain and kingdom.

Make sure you have completed the Living Things worksheet and read the sections on Bacteria and Viruses in the green science book.

You will be able to prepare and use a 3X5 note card for the test.

